


FORM PTO-1390 (Modified) (REV 5-93)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				016912-0202	
INTERNATIONAL APPLICATION NO. PCT/JP00/03752		INTERNATIONAL FILING DATE 06/09/2000		U.S. APPLICATION NO. (if known) OF PCT/JP00/03752 Unassigned 06/7009591	
PRIORITY DATE CLAIMED 06/11/1999; 07/11/1999; 09/06/1999; 01/25/2000					
TITLE OF INVENTION HEAT- EVOLVING COSMETICS					
APPLICANT(S) FOR DO/EO/US Masato SAITO and Keizo TEZUKA					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</p> <p>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19<sup>th</sup> month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))  <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).  <input checked="" type="checkbox"/> has been transmitted by the International Bureau.  <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US)</p> <p>6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))  <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).  <input type="checkbox"/> have been transmitted by the International Bureau.  <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.  <input checked="" type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>11. <input type="checkbox"/> Applicant claims small entity status under 37 CFR 1.27.</p> <p>Items 12. to 17. below concern other document(s) or information included:</p> <p>12. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>13. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>14. <input checked="" type="checkbox"/> A FIRST preliminary amendment.  <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</p> <p>15. <input type="checkbox"/> A substitute specification.</p> <p>16. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>17. <input type="checkbox"/> Other items or information: OTHER</p>					

JC07 Rec'd PCT/PTO 11 DEC 2001

U.S. APPLICATION NO. <u>107009591</u> Unassigned		INTERNATIONAL APPLICATION NO. PCT/JP00/03752		ATTORNEY'S DOCKET NUMBER 016912-0202	
18. <input checked="" type="checkbox"/> The following fees are submitted:				CALCULATIONS	
Basic National Fee (37 CFR 1.492(a)(1)-(5): Search Report has been prepared by the EPO or JPO.....\$890.00					
International preliminary examination fee paid to USPTO (37 CFR 1.482).....\$710.00					
No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$740.00					
Neither international preliminary examination fee (37 CFR 1.482) nor International search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$1,040.00					
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....\$100.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$890.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than 20 Months from the earliest claimed priority date (37 CFR 1.492(e))					
Claims	Number Filed	Included in Basic Fee	Extra Claims		Rate
Total Claims	29	-	20	=	9
Independent Claims	5	-	3	=	2
				x	\$18.00
				x	\$84.00
Multiple dependent claim(s) (if applicable)				\$280.00	
TOTAL OF ABOVE CALCULATIONS =				\$1220.00	
Reduction by 1/3 for filing by small entity, if applicable.				\$0.00	
SUBTOTAL =				\$1220.00	
Processing fee of \$130.00 for furnishing English translation later the 20 months from the earliest claimed priority date (37 CFR 1.492(f)).				+	
TOTAL NATIONAL FEE =				\$1220.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$40.00	
TOTAL FEES ENCLOSED =				\$1260.00	
				Amount to be: refunded \$	
				charged \$	
a. <input checked="" type="checkbox"/> A check in the amount of \$1260.00 to cover the above fees is enclosed.					
b. <input type="checkbox"/> Please charge my Deposit Account No. <u>19-0741</u> in the amount of \$0.00 to the above fees. A duplicate copy of this sheet is enclosed.					
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>19-0741</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO:					
Foley & Lardner Customer Number: 22428  22428			SIGNATURE <u>Richard L. Schwaab</u> for NAME RICHARD L. SCHWAAB REGISTRATION NUMBER 25,479		

PATENT TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 016912-0202

In re patent application of

Masato SAITO et al.

Serial No.: Unassigned

Filed: December 11, 2001

For: HEAT-EVOLVING COSMETICS

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to examination of the above-identified application, Applicants respectfully request that the following amendments be entered into the application:

**IN THE TITLE:**

Please amend the title to read --HEAT-EVOLVING COSMETICS--.

**IN THE SPECIFICATION:**

Page 6, the paragraph at lines 15 through 31, please replace with the following:

-- The synthetic hydrotalcite used in the present invention is a basic hydrate of magnesium carbonate and aluminum carbonate, which has a chemical formula such as  $Mg_6Al_2(OH)_{16}CO_3 \cdot 4H_2O$ ,  $Mg_{4.5}Al_2(OH)_{13}CO_3 \cdot 3.5H_2O$ ,  $Mg_{4.3}Al_2(OH)_{12.6}CO_3 \cdot mH_2O$ , including KYOWAAD 500, 1000 and DHT-4A commercially available from Kyowa Chemical Industry Co., Ltd. Synthetic calcined hydrotalcite is a material that synthetic hydrotalcite is calcined to eliminate  $H_2O$  and  $CO_2$ , having a chemical formula such as  $Mg_{0.7}Al_{0.3}O_{1.15}$ , and there may be mentioned for example, KYOWAAD 2000 commercially available from Kyowa Chemical Industry Co., Ltd. etc. Among them, KYOWAAD 2000, etc., which is a calcined product having a good heat-generating property and which is gentle to skin due to its spherical powder form, is particularly preferable. The powder thereof have properties of generating heat of cohesion when they are in contact with water.--

Page 7, the paragraph at lines 3 through 14, please replace with the following:

--Zeolite used in the present invention is a material which generates heat of hydration when blended with water, and synthetic zeolite powder, for example  $(1-x)\text{Na}_2\text{O} \cdot x\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 (x \geq 0.3)$  (synthetic zeolite 3A type);  $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$  (synthetic zeolite 4A type);  $(1-x)\text{Na}_2\text{O} \cdot x\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 (x \geq 0.7)$  (synthetic zeolite 5A type) are preferable. As to the particle size distribution of the synthetic zeolite, 0.15mm or less is preferred, and such products, there may be mentioned Zeolum A-3 powder, Zeolum A-4 powder and Zeolum A-S powder commercially available from TOSOH Corporation, and others available from UNION SHOWA K.K.--

#### **IN THE CLAIMS:**

Please replace claims 3 through 5 with the following amended claims 3 through 5 as follows:

--3. (Amended) The heat-generating cosmetic according to Claim 1, wherein said polyhydric alcohol or polyoxyalkylene (having 2 or 3 carbon atoms) – glycol adduct is at least one compound selected from the group consisting of polyethylene glycol, 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether and polyoxyethylene-modified organosiloxane.

4. (Amended) The heat-generating cosmetic according to Claim 1, wherein said thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.

5. (Amended) The heat-generating cosmetic according to Claim 1, which further comprises (d) sodium polyacrylate powder.--

Please add new claims 6 through 29 as follows:

--6. (New) A heat-generating cosmetic comprising

- (a) 40 to 80 % by weight of at least two compounds selected from the group consisting of polyethylene glycol, 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether and polyoxyalkylene-modified organopolysiloxane, wherein said polyoxyethylene glyceryl ether has the number of additional ethylene oxide units of 10 to 100, said polyoxyalkylene-modified organopolysiloxane has 2 or 3 alkylene carbon atoms, and said polyoxyalkylene-modified organopolysiloxane is an essential ingredient,
- (b) 5 to 40 % by weight of silicic acid anhydride or silicic acid hydrate, and
- (c) 0.5 to 30 % by weight of a thickening agent, and which is substantially non-aqueous.

7. (New) A heat-generating cosmetic comprising

- (a) 40 to 80 % by weight of at least two compounds selected from the group consisting of polyethylene glycol, 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether and polyoxyalkylene-modified organopolysiloxane, wherein said polyoxyethylene glyceryl ether has the number of additional ethylene oxide units of 10 to 100, said polyoxyalkylene-modified organopolysiloxane has 2 or 3 alkylene carbon atoms, and said polyoxyalkylene-modified organopolysiloxane is an essential ingredient,
- (b) 1 to 50 % by weight of synthetic hydrotalcite or synthetic calcined hydrotalcite, and
- (c) 0.5 to 30 % by weight of a thickening agent, and which is substantially non-aqueous.

8. (New) A heat-generating cosmetic comprising

- (a) 5.0 to 70.0 % by weight of at least two compounds selected from the group consisting of polyoxyethylene glyceryl ether and polyoxyalkylene-modified organopolysiloxane, wherein said polyoxyethylene glyceryl ether has the number of additional ethylene oxide units of 10 to 100, said polyoxyalkylene-modified organopolysiloxane has 2 or 3 alkylene carbon atoms, and said polyoxyalkylene-modified organopolysiloxane is an essential ingredient,
  - (b) 1.0 to 50.0 % by weight of zeolite, and
  - (c) 0.5 to 60.0 % by weight of a thickening agent,
- and which is substantially non-aqueous.

9. (New) The heat-generating cosmetic according to Claim 6, wherein said thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.

10. (New) The heat-generating cosmetic according to Claim 7, wherein said thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.

11. (New) The heat-generating cosmetic according to Claim 8, wherein said thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.

12. (New) The heat-generating cosmetic according to Claim 6, which further comprises (d) sodium polyacrylate powder having a particle size of 1 to 80  $\mu\text{m}$ .

13. (New) The heat-generating cosmetic according to Claim 7, which further comprises (d) sodium polyacrylate powder having a particle size of 1 to 80  $\mu\text{m}$ .

14. (New) The heat-generating cosmetic according to Claim 8, which further comprises (d) sodium polyacrylate powder having a particle size of 1 to 80  $\mu\text{m}$ .

15. (New) The heat-generating cosmetic according to Claim 9, which further comprises (d) sodium polyacrylate powder having a particle size of 1 to 80  $\mu\text{m}$ .

16. (New) The heat-generating cosmetic according to Claim 10, which further comprises (d) sodium polyacrylate powder having a particle size of 1 to 80  $\mu\text{m}$ .

17. (New) The heat-generating cosmetic according to Claim 11, which further comprises (d) sodium polyacrylate powder having a particle size of 1 to 80  $\mu\text{m}$ .

18. (New) The heat-generating cosmetic according to Claim 6, wherein said polyoxyalkylene-modified organopolysiloxane has the number of alkylene oxide units of 10 to 100.

19. (New) The heat-generating cosmetic according to Claim 7, wherein said polyoxyalkylene -modified organopolysiloxane has the number of alkylene oxide units of 10 to 100.

20. (New) The heat-generating cosmetic according to Claim 8, wherein said polyoxyalkylene-modified organopolysiloxane has the number of alkylene oxide units of 10 to 100.

21. (New) The heat-generating cosmetic according to Claim 6, wherein said polyoxyalkylene -modified organopolysiloxane is polyoxyethylene-modified organopolysiloxane.

22. (New) The heat-generating cosmetic according to Claim 7, wherein said polyoxyalkylene -modified organopolysiloxane is polyoxyethylene-modified organopolysiloxane.

23. (New) The heat-generating cosmetic according to Claim 8, wherein said polyoxyalkylene -modified organopolysiloxane is polyoxyethylene-modified organopolysiloxane.

24. (New) The heat-generating cosmetic according to Claim 12, wherein said sodium polyacrylate powder is contained in an amount of 0.05 to 2.0% by weight in the heat-generating cosmetic.

25. (New) The heat-generating cosmetic according to Claim 13, wherein said sodium polyacrylate powder is contained in an amount of 0.05 to 2.0% by weight in the heat-generating cosmetic.

26. (New) The heat-generating cosmetic according to Claim 14, wherein said sodium polyacrylate powder is contained in an amount of 0.05 to 2.0% by weight in the heat-generating cosmetic.

27. (New) The heat-generating cosmetic according to Claim 6, which viscosity is 10,000 to 150,000 cps by using a B type rotational viscometer at 25 °C.

28. (New) The heat-generating cosmetic according to Claim 7, which viscosity is 10,000 to 150,000 cps by using a B type rotational viscometer at 25 °C.

29. (New) The heat-generating cosmetic according to Claim 8, which viscosity is 10,000 to 150,000 cps by using a B type rotational viscometer at 25 °C.--

**IN THE ABSTRACT:**

Please amend the heading from "ASBSTRACT" to --ABSTRACT--.

**REMARKS**

Entry of the foregoing amendments prior to examination is respectfully requested.  
A marked-up version of the paragraphs and claims amended showing the changes made is attached.

Respectfully submitted,

December 11, 2001

Date



Richard L. Schwaab

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## VERSIONS WITH MARKINGS TO SHOW CHANGES MADE

Page 6:

The synthetic hydrotalcite used in the present invention is a basic hydrate of magnesium carbonate and aluminum carbonate, which has a chemical formula such as  $Mg_6Al_2(OH)_{16}CO_3 \cdot [4]4H_2O$ ,  $Mg_{4.5}Al_2(OH)_{13}CO_3 \cdot 3.5H_2O$ ,  $Mg_{4.3}Al_2(OH)_{12.6}CO_3 \cdot mH_2O$ , including KYOWAAD 500, 1000 and DHT-4A commercially available from Kyowa Chemical Industry Co., Ltd. Synthetic calcined hydrotalcite is a material that synthetic hydrotalcite is calcined to eliminate  $H_2O$  and  $CO_2$ , having a chemical formula such as  $Mg_{0.7}Al_{0.3}O_{1.15}$ , and there may be mentioned for example, KYOWAAD 2000 commercially available from Kyowa Chemical Industry Co., Ltd. etc. Among them, KYOWAAD 2000, etc., which is a calcined product having a good heat-generating property and which is gentle to skin due to its spherical powder form, is particularly preferable. The powder thereof have properties of generating heat of cohesion when they are in contact with water.

Page 7:

Zeolite used in the present invention is a material which generates heat of hydration when blended with water, and synthetic zeolite powder, for example  $(1-x)Na_2O \cdot xK_2O \cdot Al_2O_3 \cdot 2SiO_2(x \geq 0.3)$  (synthetic zeolite 3A type);  $Na_2O \cdot Al_2O_3 \cdot 2SiO_2$  (synthetic zeolite 4A type);  $(1-x)Na_2O \cdot xCaO \cdot Al_2O_3 \cdot 2S[II]O_2(x \geq 0.7)$  (synthetic zeolite 5A type) are preferable. As to the particle size distribution of the synthetic zeolite, 0.15mm or less is preferred, and such products, there may be mentioned Zeolum A-3 powder, Zeolum A-4 powder and Zeolum A-S powder commercially available from TOSOH Corporation, and others available from UNION SHOWA K.K.

The Claims:

3. The heat-generating cosmetic according to [either] Claim 1[ or 2], wherein said polyhydric alcohol or polyoxyalkylene (having 2 or 3 carbon atoms) – glycol adduct is at least one compound selected from the group consisting of polyethylene glycol, 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether and polyoxyethylene-modified organosiloxane.

4. The heat-generating cosmetic according to [either]Claim 1[ or 2], wherein said thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.

5. The heat-generating cosmetic according to [any one of Claims 1 to 4]Claim 1, which further comprises (d) sodium polyacrylate powder.

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- 1 -

## SPECIFICATION

## HEAT-GENERATING COSMETIC

## 5 TECHNICAL FIELD

The present invention relates to a heat-generating cosmetic, which generates heat when brought into contact with water.

## 10 BACKGROUND ART

Various materials for providing heat-generating action to cosmetics to give one pleasant feelings when the cosmetics are applied, enhance skin hygiene and skin functions, etc., have been suggested in the past. For example, a cosmetic utilizing the exothermic reaction of alkylene glycol, etc. in contact with water (Japanese Prov. Patent Publn. No.75909/1982), a cosmetic utilizing the exothermic reaction of polyethylene glycol and activated zeolite in contact with water (Japanese Prov. Patent Publn. No.100411/1994), and also a pack, etc. utilizing the exothermic reaction of exsiccated gypsum in contact with water (Japanese Prov. Patent Publins. No.114506/1982, No.94905/1985, No.30704/1987, No.54308/1988) are disclosed.

However, heat-generating cosmetics by conventional methods have disadvantages in utilities or sensations; for example, their heat-generating action reduces with the lapse of time, though they are strong at the time of application, they drip off when applied to the skin, or they give one clammy feeling at the time of application. Furthermore, exsiccated gypsum, etc. become strongly alkaline, thus they are undesirable for the skin; materials formulated by combining polyethylene glycol and activated zeolite are inferior in wash-away ability after application.

35 An object of the present invention is to provide a

Heat-generating cosmetic, which keeps its heat-generating action, does not drip off from the skin, gives one no clammy feeling, etc., thus giving an excellent feeling.

Furthermore, an object of the present invention is to provide a cosmetic, which has an excellent wash-away ability, feeling, etc., and also keeps its heat-generating action for a long time.

#### SUMMARY OF THE INVENTION

10 The inventors studied earnestly to solve the above problems and as a result, they have found that a heat-generating cosmetic comprising

(a) a polyhydric alcohol and/or a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, which  
15 generates heat in contact with water,

(b) one or more compounds selected from the group consisting of silicic acid anhydride, silicic acid hydrate, synthetic hydrotalcite and synthetic calcined hydrotalcite, and

20 (c) a thickening agent, and which is substantially non-aqueous, or, a heat-generating cosmetic comprising

(a) a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, which generates heat in contact with  
25 water,

(b) zeolite, and

(c) a thickening agent, and which is substantially non-aqueous, could attain the above object.

30 Namely, the present invention relates to a heat-generating cosmetic comprising

(a) a polyhydric alcohol and/or a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, which generates heat in contact with water,

35 (b) silicic acid anhydride and/or silicic acid hydrate,

(c) a thickening agent,  
and which is substantially non-aqueous.

Or the present invention relates to a heat-generating cosmetic comprising

- 5 (a) a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, which generates heat in contact with water,  
(b) zeolite, and  
(c) a thickening agent,  
10 and which is substantially non-aqueous.

Also, one of the preferred embodiments of the present invention relates to the above heat-generating cosmetic, wherein a polyhydric alcohol or a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct is selected from  
15 polyethylene glycol, 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether and polyoxyalkylene-modified organopolysiloxane.

Also, another preferred embodiment of the present invention relates to the above heat-generating cosmetic,  
20 wherein the thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.

Further, still another preferred embodiment of the  
25 present invention relates to the above heat-generating cosmetic, which further comprises (d) sodium polyacrylate powder.

#### BEST MODE FOR CARRYING OUT THE INVENTION

- 30 According to the present invention, silicic acid anhydride, silicic acid hydrate, synthetic hydrotalcite or a calcined product thereof is used together with a polyhydric alcohol or a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct which generates heat in  
35 contact with water, to control heat-generation and to

provide moisture retention. Also, according to the present invention, by using a polyoxyalkylene (having 2 or 3 carbon atoms in alkylene group)-glycol adduct which generates heat in contact with water and zeolite together, heat-generation of zeolite is controlled so that the heat-generating action can be sustained for a long time, and also water wash-away ability after the heat-generating cosmetic is applied to the skin is excellent as compared with those using mere polyoxyethylene glycol, glycerol, etc. in combination to utilize hydration heat thereof.

The Polyhydric alcohols or the polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adducts, which generate heat in contact with water, used in the present invention, are for example polyhydric alcohol such as ethylene glycol, diethylene glycol, dipropylene glycol, polyethylene glycol, polypropylene glycol, copolymer of polyoxyethylene and polyoxypropylene, 1,3-butylene glycol, propylene glycol, glycerol and polyglycerol, etc. Further, as the polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adducts, there may be mentioned for example, a polyoxyethylene alkyl (having 12 to 14 carbon atoms) ether such as polyoxyethylene glyceryl ether, polyoxypropylene glyceryl ether, polyoxyethylene polyoxypropylene glyceryl ether and polyoxyethylene lauryl ether; a polyoxyalkylene aliphatic ester such as polyethylene glycol monolaurate, polypropylene glycol laurate and polyethylene glycol dilaurate; polyoxyethylene methyl glucoside and polyoxyalkylene-modified organopolysiloxane. The total number of additional units of one or more ethylene oxide or propylene oxide in the adduct is preferably 10 to 100. They are used alone or in combination with two or more of them. Among them, polyethylene glycol (as to the number average molecular weight, 100 to 800 is preferred), 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether or polyoxyalkylene-modified organopolysiloxane is

preferred in order to attain the object of the present invention. It is also particularly preferable to use two or more of them to keep heat generation at a pleasant temperature. Since the heat-generating cosmetic of the present invention has viscosity, preferably polyoxyalkylene-modified organopolysiloxane is used together to obtain a deaerating effect.

According to the present invention, by using the polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct which generates heat in contact with water and zeolite together, heat-generation of zeolite is controlled so that heat-generating action can be sustained for a long time, and also water wash-away ability after the heat-generating cosmetic is applied to the skin is excellent as compared with those using mere polyoxyethylene glycol, glycerol, etc. in combination to utilize hydration heat thereof.

As to the amount of the polyhydric alcohol and/or the polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, when silicic acid anhydride, silicic acid hydrate, synthetic hydrotalcite or calcined synthetic hydrotalcite is formulated to the heat-generating cosmetic, it is preferably 20 to 95 % by weight based on the total weight of the heat-generating cosmetic, particularly preferably 40 to 80 % by weight. Also, as to the total amount of the polyoxyalkylene (having 2 or 3 carbon atoms in alkylene group)-glycol adduct, when zeolite is formulated to the heat-generating cosmetic, it is preferably 5.0 to 70.0 % by weight based on the total amount of the heat-generating cosmetic, particularly preferably 10.0 to 60.0 % by weight.

Silicic acid anhydride and silicic acid hydrate used in the present invention are the materials that generate heat of cohesion when the powder thereof are in contact with water; those which are used together with the above polyhydric alcohol or polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct to control heat-generating

action; also those formulated to decrease the clammy feeling caused by the above polyhydric alcohol or polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct. SYLOPURE series (silicic acid anhydride, Fuji Silysia Chemical Ltd.), SYLYSIA series (silicic acid hydrate, Fuji Silysia Chemical Ltd.), etc. are commercially available. Among them, SYLOPURE 35, silicic acid anhydride calcined at temperatures higher than 600 °C is particularly preferable since its heat-generation property is enough.

As to the amount of the silicic acid anhydride and/or the silicic acid hydrate, it is preferably 5 to 40 % by weight, particularly preferably 10 to 20 % by weight based on the total amount of the heat-generating cosmetic.

The synthetic hydrotalcite used in the present invention is a basic hydrate of magnesium carbonate and aluminum carbonate, which has a chemical formula such as  $Mg_6Al_2(OH)_{16}CO_3 \cdot 4H_2O$ ,  $Mg_{4.5}Al_2(OH)_{13}CO_3 \cdot 3.5H_2O$ ,  $Mg_{4.3}Al_2(OH)_{12.6}CO_3 \cdot mH_2O$ , including KYOWAAD 500, 1000 and

DHT-4A commercially available from Kyowa Chemical Industry Co., Ltd. Synthetic calcined hydrotalcite is a material that synthetic hydrotalcite is calcined to eliminate  $H_2O$  and  $CO_2$ , having a chemical formula such as  $Mg_{0.7}Al_{0.3}O_{1.15}$ , and there may be mentioned for example, KYOWAAD 2000 commercially available from Kyowa Chemical Industry Co., Ltd. etc. Among them, KYOWAAD 2000, etc., which is a calcined product having a good heat-generating property and which is gentle to skin due to its spherical powder form, is particularly preferable. The powder thereof have properties of generating heat of cohesion when they are in contact with water.

As to the total amount of the synthetic hydrotalcite and/or the calcined product thereof, it is preferably 1 to 50 % by weight, particularly preferably 3



to 20 % by weight based on the total weight of the heat-generating cosmetic.

Zeolite used in the present invention is a material which generates heat of hydration when blended with water, and synthetic zeolite powder, for example  $(1-x)\text{Na}_2\text{O} \cdot x\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 (x \geq 0.3)$  (synthetic zeolite 3A type);  $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$  (synthetic zeolite 4A type);  $(1-x)\text{Na}_2\text{O} \cdot x\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 (x \geq 0.7)$  (synthetic zeolite 5A type) are preferable. As to the particle size distribution of the synthetic zeolite, 0.15mm or less is preferred, and such products, there may be mentioned Zeolum A-3 powder, Zeolum A-4 powder and Zeolum A-5 powder commercially available from TOSOH Corporation, and others available from UNION SHOWA K.K.

As to the amount of zeolite, it is preferably 1.0 to 50.0 % by weight, particularly preferably 10.0 to 40.0 % by weight based on the total weight of the heat-generating cosmetic.

As to the thickening agents used in the present invention, there may be mentioned organic polymeric compounds such as carboxymethyl cellulose, hydroxymethyl cellulose, hydroxyethyl cellulose, hydroxypropyl cellulose, polyvinyl pyrrolidone, polyvinyl alcohol, carrageenan, xanthan gum, starch derivatives, e.g. aluminum starch octenylsuccinate, inorganic compounds such as kaolin, talc, titanium oxide, aluminum magnesium silicate and synthetic aluminum silicate. They are used alone or in combination of two or more of them. Particularly, hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin are preferred, since they are well miscible with the other ingredients, to give an uniform system and suitable viscosity. The heat-generating cosmetic is preferably used in viscosity of 10,000 to 150,000 cps, particularly preferably 30,000 to

100,000 cps, since its heat-generating action can be sustained for a long time, it is easy to apply to the skin, it is good in feeling and also it drips off only to a slight degree. It is particularly preferable to use the above organic polymeric compounds and the above inorganic compounds together to obtain the viscosity in the above range, also the system is uniform when heat generated. The above viscosity is a value obtained by using a B type rotational viscometer at 25 °C.

10 The thickening agent is used preferably in an amount of 0.5 to 30 % by weight, in particular 3 to 15 % by weight when silicic acid anhydride, silicic acid hydrate or synthetic hydrotalcite is formulated for the heat-generating cosmetic, while it is used preferably in  
15 an amount of 0.5 to 60.0 % by weight, particularly preferably 3.0 to 40.0 % by weight when zeolite is formulated for the heat-generating cosmetic.

In the present invention, besides the polyhydric alcohol and/or the polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, silicic acid anhydride, silicic acid hydrate, synthetic hydrotalcite, calcined synthetic hydrotalcite or zeolite, and the thickening agent, the cosmetic comprises further sodium polyacrylate powder in order to improve the clammy feeling caused by the  
20 polyhydric alcohol, the polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct and the thickening agent; skin functions are enhanced by massage action brought by sodium polyacrylate working as scrub under a warm temperature; optimum heat-generating effects are obtained by sodium  
25 polyacrylate powder mixing the cosmetic and water uniformly on the skin. In particular, it is preferable to color the sodium polyacrylate powder in the shade different from the shade of a surrounding heat-generating cosmetic, since it can be observed with eyes that the  
30

powder collapse at the time of application so it can be the guide with the lapse of time. The sodium polyacrylate powder has preferably a particle size of 1 to 80  $\mu$ m, also is used preferably in an amount of 0.05 to 2.0 % by weight.

5 In the present invention, other ingredients such as thermal agents, oils, preservatives, pigments, dyes, chelating agents, refrigerants, surfactants, anti-phlogistic agents, astringents, cell-activating agents, slimming agents, whitening agents, sebum secretion  
10 depressing agents, depilatories, antioxidants, perfumes and the like are properly formulated for the cosmetic depending on the purpose of uses. In particular, it is preferable to formulate agents for enhancing skin functions such as extracts of plants and animals, yeast  
15 extracts or vitamins, since their thermal effects strengthen the action of the other ingredients enhancing skin functions. Also, it is preferable to use thermal agents such as tincture of capsicum, extract of capsicum, tincture of ginger, extracts of ginger, capsaicin and  
20 derivatives thereof, derivatives of isovanillin, tocopherols, nicotinic acids, alkyl ether of vanillyl alcohol (another name: vanillyl-n-alkyl ether, having 3 to 6 carbon atoms in the alkyl group, in particular the substance described in Japanese Prov. Patent Publ'n.  
25 No.292711/1987, etc.) together in 0.001 to 1.0 % by weight. In the present invention, the cosmetic is required to be substantially non-aqueous, that is to be formulated by no water, in order to obtain heat-generating action only when it is applied.

30 The heat-generating cosmetic of the present invention is used for preparations for packs, massaging, shaving, depilation, face-washing, hair-treatment, or hair-washing and the like, and is adapted for use in the form of cream, gel, sheet (applied to base material), etc.

It is particularly preferable for massaging preparations for packs that are washed away. As to the way of using it, for example a face etc. is wetted by water or lotion, and then the heat-generating cosmetic of the invention is applied, the heat-generating cosmetic and water are mixed together to generate heat while massaging the skin with fingers, then they can be washed away with water or are removed after drying.

Hereinbelow, the present invention is described in more detail by referring to Examples, but these Examples are not at all limitative of the present invention.

As to the evaluation of the heat-generating cosmetic, the heat-generating cosmetic was used by 10 panelists and was examined organoleptically regarding each evaluation point to evaluate by the following evaluation criteria 1, etc. Further, the durability of heat generated was evaluated by whether the effects were sustained for 5 minutes or not.

[organoleptic evaluation criteria 1]

◎ : 9 to 10 persons answered "good"

○ : 6 to 8 persons answered "good"

△ : 3 to 5 persons answered "good"

× : 0 to 2 persons answered "good"

Examples 1 to 3, comparative Example 1

The washable heat-generating packs were prepared according to the formulations shown in the following Table 1, and the obtained packs were evaluated by the above organoleptic evaluation method. The results are given in Table 1. Amounts of the ingredients are given by % by weight (the same applies hereinafter).

Table 1

Ingredients	Example1	Example2	Example3	Comp. Example1
Polyethylene glycol (number average molecular weight: 200)	20.0	20.0	20.0	20.0
Polyethylene glycol (number average molecular weight: 400)	20.0	20.0	20.0	20.0
1,3-butylene glycol	15.0	15.0	10.0	15.0
Glycerol	15.0	15.0	15.0	15.0
Silicic acid anhydride *1	5.0	5.0	5.0	-
Silicic acid hydrate *2	10.0	10.0	5.0	-
Hydroxypropyl cellulose	0.6	0.6	0.6	0.6
Kaolin	reminder	reminder	reminder	reminder
Aluminum starch octenylsuccinate	2.0	2.0	2.0	2.0
Synthetic sodium silicate	1.0	1.0	1.0	1.0
Sodium polyacrylate (blue colored powder mean particle diameter:10 $\mu$ m)	-	1.0	1.0	-
Silicone oil*3	0.2	0.2	0.2	0.2
Witch hazel extract (1,3-BG extract)	0.2	0.2	0.2	-
Perfume	0.1	0.1	0.1	0.1
Viscosity(cps, 25°C)	10,000	20,000	84,000	3,000
Clammy feeling at the time of application	○	◎	◎	×
Dripping after application	○	◎	◎	△
Warm feeling and durability	○	○	◎	△

\*1 SYLOPURE 35(calcedine)/ SYLOPURE 25(1/1)(Fuji Silysia Chemical Ltd.,  
mean particle diameter:7 $\mu$ m)

\*2 SYLYSIA 770(Fuji Silysia Chemical Ltd., mean particle diameter:  
6 $\mu$ m)

\*3 polyoxyethylene-modified organopolysiloxane (Shin-Etsu Chemical  
Co., Ltd., silicone KF-351A, number of additional ethylene oxide  
units =11)

As can be seen from the results given in Table 1 lower column, Examples 1 to 3 according to the present invention indicated durable heat-generating action, no dripping from the skin, and no clammy feeling. Especially  
5 Examples 2 and 3 proved excellent. Also, each example showed excellent pack effects, by giving moisture to the skin as compared with the comparative examples. Furthermore, the heat-generating cosmetic in each example had a pH of 5 to 7 and was safe giving no trouble to the  
10 skin.

#### Example 4

Washable heat-generating packs were prepared according to the formulation shown in Table 2, and  
15 obtained packs were evaluated by the above organoleptic evaluation method. The results are given in Table 2.

Table 2

Ingredients	Example4
Polyethylene glycol (number average molecular weight:200)	20.0
Polyethylene glycol (number average molecular weight:400)	20.0
Polyoxyethylene glyceryl ether *4	15.0
Glycerol	15.0
Silicic acid anhydride *5	15.0
Hydroxypropyl cellulose	0.6
Kaolin	reminder
Aluminum starch octenylsuccinate	2.0
Synthetic sodium silicate	1.0
Sodium polyacrylate (mean particle diameter: 10 $\mu$ m)	1.0
Silicone oil*3	0.2
Witch hazel extract (1,3-BG extract)	0.2
Sage leaf extract (1,3-BG extract)	1.0
Asebiol (ASEBIOL BT; trade name) *6	1.0
Perfume	0.1
Viscosity (cps, 25°C)	83,000
Clammy feeling at the time of application	◎
Dripping after application	◎
Warm feeling and durability	◎

\*3 polyoxyethylene-modified organopolysiloxane (Shin-Etsu Chemical Co.,Ltd. , silicone KF-351A, number of additional ethylene oxide units= 11)

\*4 UNIOX G-1200 (total E.O.= 26, NOF CORPORATION)

\*5 SYLOPURE 35 (calcined) (Fuji Silysia Chemical Ltd.)

\*6 LABORATOIRES SEROBIOLOGIQUES (hydrolyzed yeast/pyridoxine/niacinamide/glycerol/panthenol/propylene glycol/allantoin/biotin included)

Examples 5 to 7, Comparative Example 2

Washable heat-generating packs were prepared according to the formulations shown in Table 3, and the obtained packs were organoleptically evaluated by the above organoleptic evaluation criteria 1. The results are given in Table 3.

Table 3

Ingredients	Example5	Example6	Example7	Comp. Example2
Polyethylene glycol (number average molecular weight: 200)	20.0	20.0	20.0	20.0
Polyethylene glycol (number average molecular weight: 400)	20.0	20.0	20.0	20.0
Polyoxyethylene glycerol ether *7	15.0	15.0	10.0	15.0
Glycerol	15.0	15.0	15.0	15.0
Synthetic calcined hydrotalcite *8	15.0	5.0	5.0	-
Silicic acid anhydride *9	-	10.0	5.0	-
Hydroxypropyl cellulose	0.6	0.6	0.6	0.6
Kaolin	reminder	reminder	reminder	reminder
Aluminum starch octenylsuccinate	2.0	2.0	2.0	2.0
synthetic sodium silicate	1.0	1.0	1.0	1.0
Sodium polyacrylate (blue colored powder mean particle diameter:10 $\mu$ m)	-	1.0	1.0	-
Silicone oil *10	0.2	0.2	5.0	0.2
Witch hazel extract (1,3-BG extract)	1.0	1.0	1.0	-
Sage leaf extract (1,3-BG extract)	1.0	1.0	1.0	-
Asebiol (ASEBIOL BT; trade name) *11	1.0	1.0	1.0	-
Perfume	0.1	0.1	0.1	0.1
Viscosity(cps, 25 $^{\circ}$ C)	15,000	19,000	82,000	3,100
Clammy feeling at the time of application	○	◎	◎	×
Dripping after application	○	◎	◎	△
Warm feeling and durability	○	○	◎	△



\*7 UNIOX G-1200 (total E.O.=26, NOF CORPORATION)

\*8 KYOWAAD 2000 (powder in the shape of a spherical, Kyowa Chemical Industry Co.,Ltd.)

\*9 SYLOPURE 35 (calcined) (Fuji Silysia Chemical Ltd.)

5 \*10 polyoxyethylene-modified organopolysiloxane (Shin-Etsu Chemical Co.,Ltd., silicone KF-351A, number of additional ethylene oxide units=11)

10 \*11 LABORATOIRES SEROBIOLOGIQUES (hydrolyzed yeast/pyridoxine/niacinamide/glycerol/panthenol/propyleneglycol/allantoin/biotin included)

As can be seen from the results given in Table 3, lower column, Examples 5 to 7 according to the present invention indicated durable heat-generating action, no  
15 dripping from the skin, and no clammy feeling. Especially Examples 6 and 7 proved excellent. Also, each example showed excellent pack effects giving moisture etc. to the skin compared with the comparative example. Furthermore  
20 the heat-generating cosmetic in each example proved safe with no stimulation or trouble observed on any of the panelists' skins after application.

#### Example 8

Washable heat-generating packs were prepared  
25 according to the formulation shown in Table 4, and the obtained packs were organoleptically evaluated by the above organoleptic evaluation criteria 1. The results are given in Table 4.

Table 4

Ingredients	Example8
1,3-butylene glycol	40.0
Polyoxyethylene glycerol ether *7	15.0
Glycerol	15.0
Synthetic calcined hydrotalcite *8	10.0
Silicic acid anhydride *9	5.0
Hydroxypropyl cellulose	0.6
Kaolin	reminder
Aluminum starch octenylsuccinate	2.0
Synthetic sodium silicate	1.0
Sodium polyacrylate (mean particle diameter: 10 $\mu$ m)	1.0
Silicone oil *10	0.2
Witch hazel extract (1,3-BG extract)	1.0
Sage leaf extract (1,3-BG extract)	1.0
Asebiol (ASEBIOL BT; trade name) *11	1.0
Perfume	0.1
Clammy feeling at the time of application	○
Dripping after application	○
Warm feeling and durability	○

(\*7 to 11); same as what was given in Examples 5 to 7

Examples 9 to 10, Comparative Examples 3 to 4

- 5 Washable heat-generating packs were prepared according to the formulation shown in Table 5, and the obtained packs were examined organoleptically regarding each evaluation point and were evaluated by the following organoleptic evaluation criteria 2. The results are given
- 10 in Table 5. The durability of heat generated was evaluated by whether the effects sustained for 5 minutes or not.

[organoleptic evaluation criteria 2]

- 15 ○ : 7 to 10 persons answered "good"
- △ : 3 to 6 persons answered "good"
- × : 0 to 2 persons answered "good"

Table 5

Ingredients	Example9	Example10	Comp. Example3	Comp. Example4
Polyoxyethylene glycerol ether*12	50.0	50.0	50.0	-
Polyoxyethylene methyl glucoside *13	1.0	1.0	1.0	-
Glycerol	-	-	-	51.0
Zeolite *14	38.0	38.0	-	38.0
Hydroxypropyl cellulose	0.7	0.7	0.7	0.7
Kaolin	remainder	remainder	remainder	remainder
Synthetic magnesium sodium silicate	1.0	1.0	1.0	1.0
Titanium oxide	0.4	0.4	0.4	0.4
Talc	1.0	1.0	1.0	1.0
Sodium poly-acrylate (blue colored powder, mean particle diameter:10 $\mu$ m)	-	1.0	-	-
Silicone oil *15	0.2	0.2	0.2	0.2
Witch hazel extract (1,3-BG extract)	1.0	1.0	1.0	1.0
Salvia officinalis extract (1,3-BG extract)	1.0	1.0	1.0	1.0
Perfume	0.1	0.1	0.1	0.1
Clammy feeling at the time of application	○	○	△	△
Warm feeling and durability	○	○	×	△
Wash-away ability	○	○	○	×

\*12 UNIOX G-1200 (total E.O.=26, NOF CORPORATION)

\*13 Glucam E-20 (total E.O.=26, Amerchol Co.)

\*14 Zeolum A-4 (TOSOH Corporation),  $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$

5 \*15 polyoxyethylene-modified organopolysiloxane (Shin-Etsu Chemical Co., Ltd., silicone KF-351A, number of additional ethylene oxide units=11)

As can be seen from the results given in Table 5 lower column, Examples 9 and 10 according to the present invention indicated durable heat-generating action and little clammy feeling; in particular, Example 2, gave no clammy feeling. Also, Examples 9 and 10 indicated excellent wash-away performance, with no trouble on the skin observed after application, and pack effects on the skin obtained.

10 Example 11

Washable heat-generating packs were prepared according to the formulation shown in Table 6, and obtained packs were evaluated by the above organoleptic evaluation method. The results are given in Table 6.

15 Table 6

Ingredients	Example 11
Polyoxyethylene glycerol ether *16	50.0
Zeolite *17	20.0
Silicic acid anhydride *18	5.0
Hydroxypropyl cellulose	0.6
Kaolin	reminder
Aluminum starch octenylsuccinate	2.0
Synthetic sodium silicate	1.0
Sodium polyacrylate (mean particle diameter: 10 $\mu$ m)	1.0
Silicone oil *19	0.2
Witch hazel extract (1,3-BG extract)	1.0
Sage leaf extract (1,3-BG extract)	1.0
Vanillyl-n-butylether	0.05
Perfume	0.1
Clammy feeling at the time of application	○
Warm feeling and durability	○
Wash-away ability	○

\*16 UNIOX G-1200 (total E.O.=26, NOF CORPORATION)

\*17 Zeolum A-3 (Tosoh Corporation) , (1-x)Na<sub>2</sub>O·xK<sub>2</sub>O·Al<sub>2</sub>O<sub>3</sub>·2SiO<sub>2</sub> (x $\geq$  0.3)

\*18 SYLOPURE 35 (calcined)(Fuji Silysia Chemical Ltd.

\*19 polyoxyethylene-modified organopolysiloxane (Shin-Etsu Chemical Co.,Ltd., silicone KF-351A, number of additional ethylene oxide units=11)

INDUSTRIAL APPLICABILITY

As described above, the present invention is able to provide a heat-generating cosmetic, whose heat generating action lasts long, which does not drip off from the skin and is excellent in feeling (e.g. giving no clammy feeling), etc.

1000501751104

CLAIMS

1. A heat-generating cosmetic comprising
  - (a) a polyhydric alcohol and/or a polyoxyalkylene  
5 (having 2 or 3 carbon atoms)-glycol adduct, which generates heat in contact with water,
  - (b) one or more compounds selected from the group consisting of silicic acid anhydride, silicic acid hydrate, synthetic hydrotalcite and synthetic calcined  
10 hydrotalcite, and
  - (c) a thickening agent,and which is substantially non-aqueous.
2. A heat-generating cosmetic comprising
  - 15 (a) a polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct, which generates heat in contact with water,
  - (b) zeolite, and
  - (c) a thickening agent,and which is substantially non-aqueous.
- 20 3. The heat-generating cosmetic according to either Claim 1 or 2, wherein said polyhydric alcohol or polyoxyalkylene (having 2 or 3 carbon atoms)-glycol adduct is at least one compound selected from the group consisting of  
25 polyethylene glycol, 1,3-butylene glycol, glycerol, polyoxyethylene glyceryl ether and polyoxyethylene-modified organosiloxane.
- 30 4. The heat-generating cosmetic according to either Claim 1 or 2, wherein said thickening agent is at least one compound selected from the group consisting of hydroxypropyl cellulose, aluminum starch octenylsuccinate, synthetic aluminum silicate and kaolin.
- 35 5. The heat-generating cosmetic according to any one of

Claims 1 to 4, which further comprises (d) sodium polyacrylate powder.

**DECLARATION AND POWER OF ATTORNEY**

As a below named inventor, I HEREBY DECLARE:

THAT my residence, post office address, and citizenship are as stated below next to my name;

THAT I believe I am the original, first, and sole inventor (if only one inventor is named below) or an original, first, and joint inventor (if plural inventors are named below or in an attached Declaration) of the subject matter which is claimed and for which a patent is sought on the invention entitled

HEAT-GENERATING COSMETIC

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the specification of which (check one)

\_\_\_\_\_ is attached hereto.

X was filed on 9/June/2000 as United States Application Number or PCT International Application Number PCT/JP00/03752 and was amended on 28/December/2000 (if applicable).

THAT I do not know and do not believe that the same invention was ever known or used by others in the United States of America, or was patented or described in any printed publication in any country, before I (we) invented it;

THAT I do not know and do not believe that the same invention was patented or described in any printed publication in any country, or in public use or on sale in the United States of America, for more than one year prior to the filing date of this United States application;

THAT I do not know and do not believe that the same invention was first patented or made the subject of an inventor's certificate that issued in any country foreign to the United States of America before the filing date of this United States application if the foreign application was filed by me (us), or by my (our) legal representatives or assigns, more than twelve months (six months for design patents) prior to the filing date of this United States application;

THAT I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment specifically referred to above;

THAT I believe that the above-identified specification contains a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it



- \* pertains, or with which it is most nearly connected, to make and use the invention, and sets forth the best mode contemplated by me of carrying out the invention; and

THAT I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I HEREBY CLAIM foreign priority benefits under Title 35, United States Code §119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number	Country	Foreign Filing Date	Priority Claimed?	Certified Copy Attached?
165151/1999	Japan	11/June/1999	yes	no
187514/1999	Japan	01/July/1999	yes	no
187520/1999	Japan	01/July/1999	yes	no
251338/1999	Japan	06/September/1999	yes	no
015546/2000	Japan	25/January/2000	yes	no
015547/2000	Japan	25/January/2000	yes	no
015548/2000	Japan	25/January/2000	yes	no

I HEREBY CLAIM the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

U.S. Provisional Application Number	Filing Date

I HEREBY CLAIM the benefit under Title 35, United States Code, §120 of any United States application(s), or § 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Application Number	Parent Filing Date	Parent Patent Number

I HEREBY APPOINT the following registered attorneys and agents of the law firm of FOLEY & LARDNER to have full power to prosecute this application and any continuations, divisions, reissues, and reexaminations thereof, to receive the patent, and to transact all business in the United States Patent and Trademark Office connected therewith:

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I UNDERSTAND AND AGREE THAT the foregoing attorneys and agents appointed by me to prosecute this application do not personally represent me or my legal interests, but instead represent the interests of the legal owner(s) of the invention described in this application.

I FURTHER DECLARE THAT all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false

- statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

*W* Name of first inventor \_\_\_\_\_

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